

Amendments to the Claims:

A listing of the entire set of pending claims (including amendments to the claims, if any) is submitted herewith per 37 CFR 1.121. This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) Information carrier containing a non-clonable optical identifier ~~[[(2)]]~~ comprising:

an optical scattering medium and a light absorbing means for hampering an attempt to clone the information carrier by challenging it with all possible challenges and storing the detected responses;

[[an]] said optical scattering medium ~~[[(3)]]~~ comprising a scattering material having a low light transmittance or reflectance, containing scattering particles of phase-change material or photo-effect material, said optical scattering means for being challenged by a light beam ~~[[(5)]]~~ passing through said optical scattering medium and for scattering said light beam ~~[[(5)]]~~, and

[[a]] said light absorbing means ~~[[(3, 4)]]~~ for reducing the intensity of said light beam ~~[[(5)]]~~ passing there-through so that an integration time for obtaining a response signal by integrating the light beam scattered ~~[[(8)]]~~ is extended.

2. (Currently Amended) Information carrier as claimed in claim 1, wherein ~~characterized in that~~ said light absorbing means comprises a gray filter ~~[[(4)]]~~ attached to said optical scattering medium ~~[[(3)]]~~.

3. (Currently Amended) Information carrier as claimed in claim 1, wherein ~~characterized in that~~ said light absorbing means comprises a phase change layer, which darkens permanently when the intensity of said light beam ~~[[(5)]]~~ is above a threshold intensity.

4. (Currently Amended) Information carrier as claimed in claim 1, wherein
~~characterized in that~~ said light absorbing means comprises a photo layer, which darkens temporarily when the intensity of said light beam ~~[(5)]~~ is above a threshold intensity.
5. (Currently Amended) Information carrier as claimed in claim 1, wherein
~~characterized in that~~ said light absorbing means comprises a photo layer which darkens permanently when exposed to light.
6. (Currently Amended) Information carrier as claimed in claim 1, wherein
~~characterized in that~~ said scattering medium ~~[(3)]~~ and said light absorbing means are integral.
7. (Cancelled)
8. (Currently Amended) Information carrier as claimed in claim 1, wherein
~~characterized in that~~ said non-clonable optical identifier further comprises a light modulator ~~[(16)]~~ on the side of the information carrier for facing said light beam ~~[(5)]~~.
9. (Currently Amended) Information carrier as claimed in claim 8, wherein
~~characterized in that~~ said light modulator ~~[(16)]~~ has a switching time larger than 1 ms.
10. (Currently Amended) Reading apparatus for reading an information carrier ~~[(1)]~~ containing a non-clonable optical identifier ~~[(2)]~~ comprising an optical scattering medium and a light absorbing means for hampering an attempt to clone the information carrier by challenging it with all possible challenges and storing the detected responses;
wherein said [an] optical scattering medium [(3)] is configured for being challenged by a light beam [(5)] passing through said optical scattering medium having a low light transmittance or reflectance, containing scattering particles of phase-change material or photo-effect material, and for scattering said light beam [(5)] via micron-scale scattering particles contained within said optical scattering medium,, and
wherein said [a] light absorbing means is arranged in close proximity to the optical scattering medium and is configured [(3, 4)] for reducing the intensity of said light
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beam passing there-through [(5)] so that an integration time for obtaining a response signal by integrating the light beam scattered [(8)] is extended,

said reading apparatus comprising:

a light source [(13)] for emitting a light beam [(5)] for challenging the optical identifier [(2)] of said information carrier [(1)], and

a detector [(6)] for detecting scattered light [(8)] scattered by the scattering medium [(3)] of said information carrier [(1)] and for integrating said scattered light [(8)] over a period of time for obtaining a response signal to be used for comparing to a stored response signal associated with a corresponding challenge signal.

11. (Currently Amended) Reading apparatus as claimed in claim 10, further comprising:
a storage means [(14)] for storing challenge signals and associated response signals for said identifier [(2)], and

a comparison means [(15)] for comparing the obtained response signal with the stored response signal associated with a corresponding challenge signal.

12. (Currently Amended) Reading apparatus as claimed in claim 10, further comprising a light modulator [(16)] arranged between the light source [(13)] and the identifier [(2)] when the information carrier is present inside the reading apparatus.

13. (Currently Amended) Reading apparatus as claimed in claim 12, wherein ~~characterized in that~~ said light modulator [(16)] contains an array of dark and bright pixels, wherein the array can be switched.

14. (Currently Amended) Reading apparatus as claimed in claim 12, further comprising a lens system [(9, 11, 12)] for widening the light beam [(5)], wherein the light modulator [(16)] is arranged in a widened section of the light beam [(5)].

15. (Currently Amended) Method for identifying an information carrier containing a non-clonable optical identifier [[(2)]] comprising an optical scattering medium and a light absorbing means for hampering an attempt to clone the information carrier by challenging it with all possible challenges and storing the detected responses;

wherein said [[an]] optical scattering medium [[(3)]] is configured for being challenged by a light beam [[(5)]] passing through said optical scattering medium having a low light transmittance or reflectance, containing scattering particles of phase-change material or photo-effect material, and for scattering said light beam [[(5)]] via micron-scale scattering particles contained within said optical scattering medium,, and

wherein said [[a]] light absorbing means is arranged in close proximity to the optical scattering medium and is configured [[(3, 4)]] for reducing the intensity of said light beam passing there-through [[(5)]] so that an integration time for obtaining a response signal by integrating the light beam scattered [[(8)]] is extended, said method comprising the steps of:

challenging the optical identifier [[(2)]] of said information carrier [[(1)]] by a light beam [[(5)]],

detecting scattered light [[(8)]] scattered by the scattering medium [[(3)]] of said information carrier [[(1)]],

integrating said scattered light [[(8)]] over a period of time for obtaining a response signal, and

comparing the obtained response signal with a stored response signal associated with a corresponding challenge signal.

16. (Currently Amended) Non-clonable optical identifier [[(2)]], in particular for use in an information carrier as claimed in claim 1, comprising:

an optical scattering medium [[(3)]] for being challenged by a light beam [[(5)]] and for scattering said light beam [[(5)]], and

a light absorbing means [[(3, 4)]] for reducing the intensity of said light beam [[(5)]] so that an integration time for obtaining a response signal by integrating the light beam scattered [[(8)]] is extended.